Equations and Constants for Quiz #3

The following equations and constants will be given on Quiz #3. If you don’t see something here, then you should commit it to memory.

Gas Constant: \( R = 0.0821 \, \text{L} \cdot \text{atm} \cdot \text{mole}^{-1} \cdot \text{K}^{-1} \)

Planck’s constant: \( h = 6.626 \times 10^{-34} \, \text{J} \cdot \text{s} \)

Rydberg constant: \( R = 1.097 \times 10^7 \, \text{m}^{-1} \)

mass of electron: \( m_e = 9.109 \times 10^{-31} \, \text{kg} \)

Avogadro’s number: \( N = 6.022 \times 10^{23} \, \text{mole}^{-1} \)

\( 1 \text{eV} = 1.602 \times 10^{-19} \, \text{J} \)

\[ \lambda = \frac{h}{m \cdot u} \]

\[ \Delta x \cdot m \Delta u \geq \frac{h}{4\pi} \]

\[ \Delta E = -2.18 \times 10^{-18} \, J \left( \frac{1}{n_f^2} - \frac{1}{n_i^2} \right) \]

\[ \frac{1}{\lambda} = R \left( \frac{1}{n_1^2} - \frac{1}{n_2^2} \right) \]

\[ E = T \times 8.6 \times 10^{-5} \, \text{eV} / \text{K} \]

\[ 2eV = \frac{10^6 V}{cm} \]